

ABSTRACT OF THE DISCLOSURE

Bites from *Amblyomma americanum*, a hard tick, have been associated with a Lyme disease-like illness in the southeastern and south-central United States. Present in 2% of ticks collected in four states were uncultivable spirochetes. Through use of the polymerase chain reaction, partial sequences of the flagellin and 16s rRNA genes of microorganisms from Texas and New Jersey were obtained. The sequences showed that the spirochete was a *Borrelia* sp. but distinct from other known members of this genus, including *B. burgdorferi*, the agent of Lyme disease. Species-specific differences in the sequences of the flagellin protein, the flagellin gene and the 16s rRNA gene between the new *Borrelia* species and previously known species provide compositions and methods for assay for determining the presence of this new spirochete, or for providing evidence of past or present infection by this spirochete in animal reservoirs and humans.